

REMARKS/ARGUMENTS

Claims 1-47 stand variously rejected in the outstanding Official Action. Claims 3 and 26 have been canceled, without prejudice, and claims 1 and 24 amended. Accordingly, claims 1, 2 4-25 and 27-47 are the only claims remaining in the application.

The Examiner's acknowledgement of Applicant's claim to foreign priority and receipt of the certified copies of the priority document is very much appreciated. Additionally, the Examiner's notification of PTO acceptance of the previously filed formal drawings is appreciated. Finally, the Examiner's acknowledgement and consideration of the prior art submitted with Applicant's previously filed Information Disclosure Statement is appreciated.

In section 7 of page 2 of the Official Action, the Examiner objects to the originally filed Abstract of the Disclosure. Applicant has rewritten the abstract and submitted a substitute abstract believed to meet all Patent Office abstract requirements. Entry and consideration of the substitute abstract is respectfully requested.

On pages 3 and 4, sections 8 and 9 of the outstanding Official Action, the Examiner makes provisional obviousness-type double patenting rejections, but specifically notes "in each instance" that "the conflicting claims have not in fact been patented." Applicant appreciates the Examiner's making Applicant aware of a potential obviousness-type double patenting problem. Applicant respectfully traverses the rejections in sections 8 and 9 over the co-pending applications for the reason noted by the Examiner, i.e., that neither co-pending application 10/714,518 or 10/714,563 has as yet been patented. In the event one of the two co-pending applications actually issues as a patent, Applicant will consider the filing of a Terminal Disclaimer as appropriate. Until issuance of one of the co-pending applications, the provisional rejection is respectfully traversed.

In section 10, the Examiner rejects claims 1-8 and 24-31 as claiming “the same invention” as in claims 1-3 and 8-10 of U.S. Patent 7,124,274 (commonly assigned with the present application). As stated in the MPEP § 804 (II)(A) the phrase “same invention” means “identical subject matter.” A brief review of U.S. Patent 7,124,274 will show that claim 1 in the ‘274 patent is not identical to the present claim 1 and, in fact, is significantly more limited. As a result, the patent claim 1 is not “identical subject matter” to claim 1 in the present application.

Specifically, in the ‘274 patent, the language of the last two paragraphs of claim 1 is not included in the presently pending claim 1. Similarly, the last two paragraphs in method claim 8 in the ‘274 patent are not included in method claim 24 in the current application. As a result, in accordance with the MPEP section noted above, independent claims 1 and 24 (and claims 2-8 and 25-31 depended thereon) in the present application cannot be the “same invention”, i.e., “identical subject matter”, as claims 1-3 and 8-10 of the ‘274 patent. Therefore, there is no basis for a statutory double patenting rejection under 35 U.S.C. § 101.

In section 11, the Examiner rejects claims 1-8 and 24-31 as claiming “the same invention” as in claims 1-11 of U.S. Patent 7,117,284 (commonly assigned with the present application). As before with the ‘274 patent, a brief review of the ‘284 patent will show that claim 1 is significantly more limited than present claim 1 and thus cannot be “identical subject matter.”

Specifically, in the ‘284 patent, the language of the last paragraph and last three subparagraphs of claim 1 is not present in pending claim 1 of the current application. Similarly, the last step and three sub-paragraphs in method claim 6 in the ‘284 patent are not included in method claim 24 in the current application. As a result and in accordance with the MPEP section noted above, independent claims 1 and 24 (and claims 2-8 and 25-31 depended thereon) in the

present application, cannot be the “same invention”, i.e., “identical subject matter”, as claims 1-11 of the ‘284 patent. Therefore, there is no basis for a statutory double patenting rejection under 35 U.S.C. § 101.

Claims 24-47 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. The Examiner’s rejection appears to be based upon Patent Office policy in which method claims are rejected as being “non-statutory subject matter” if they are related to any computer-implemented method and do not recite implementing structure.

The only explanation of the rejection in the outstanding Official Action is the Examiner’s suggestion that claims 24-27 are either “directed to computer program product” (which is simply incorrect), or “executing a program.” As is well known, there is nothing non-statutory about a method or process executable as a computer program, but Patent Office policy dictates that such claims must recite minimal hardware in the method implementation.

Applicant’s independent claim 24 and claims dependent thereon, clearly meet the Patent Office requirements. Claim 24 has been amended to recite “processor core” and this is clear hardware (processor core 10) disclosed in Applicant’s specification and figures. Also, the recited method step of “in response to one or more exception conditions, triggering exception processing. . . “ is a method step performed by structure by structure in Applicant’s specification (for example, VIC 21 and processor core 10 perform this “triggering” step).

Accordingly, since Applicant’s independent claim 24 recites structure, i.e. the “processor core”, and recites a method step which is performed by structure clearly disclosed in the specification (processor core 10 and VIC 21 as shown in Figure 1) there is no legitimate basis for rejection of claims 24-47 under 35 U.S.C. § 101 and any further rejection thereunder is respectfully traversed.

Moreover, Applicant also traverses the rejection of claims 24-47 under 35 U.S.C. § 101 as the cited statute specifically indicates that “any new and useful process” may be patentable subject to the conditions and requirements of the statute. The Examiner has cited no statutory condition or requirement which specifies that a “method of processing data” is not a “new and useful process”. Accordingly, without any further explanation by the Patent Office, there is no non-statutory basis alleged in the rejection of claims 24-47 and any further rejection thereunder is respectfully traversed.

Claims 1-10, 12-18, 21-33, 35-41 and 44-47 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Christie et al. The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that “[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.”

With reference to independent claims 1 and 24, the Examiner’s attention is directed to Applicant’s specification, pages 28 and 29 and to Figures 14-16. Figure 16 points out the programming of one of the trap mask registers with respective bits associated with each type of exception to indicate whether or not processing is forced to go to the monitor mode (secure) or can remain non-secure mode. Thus, as well as being dependent upon whether or not the processor is operating in the secure domain or the non-secure domain, the exception handling is additionally dependent upon “respective programmable configurations” that “control triggering of either a non-secure exception handler operating in a non-secure mode or a secure exception handler operating in a secure mode with any change of domain also being triggered when required.”

It is noted that the above language has been added in the amendment to independent claim 1 and corresponding language added to independent method claim 24. This language was previously existent in dependent claims 3 and 26 and accordingly those claims have been canceled without prejudice. Thus, in order to support the rejection of amended independent claims 1 and 24 it is incumbent upon the Examiner to identify how and where the Christie patent discloses the claims “respective programmable configurations.”

The Examiner contends on page 6, that, with respect to claim 3 (and accordingly claim 26), the subject matter of claims 3 (and 26) is disclosed in Christie at column 9 beginning at line 45. However, the Examiner alleges that the language of former claim 3, i.e., “said one or more exception conditions have respective programmable configurations” is disclosed in Christie at column 9, beginning at line 45. Because the Examiner does not indicate where this alleged disclosure ends in the Christie reference, for the purpose of response, Applicant will assume that the Examiner intended to refer to column 9, line 45 through column 14, line 11. As will be seen, there is no disclosure anywhere in Christie of this claimed subject matter.

The Christie patent discloses two potential behaviors. In Figure 4 when a secure execution mechanism (SEM) interrupt is received, a determination is made as to whether the SMI is enabled (in step 501) and whether the processor is currently performing trusted execution (in step 502). It should be noted that both of these conditions are modes of the processor rather than configurations associated with the exceptions. Further, only if both of these processor mode conditions are met (yes), do the security clean up operations 503, 504 and 505 continue. Of course, if either condition is not met (no) then the normal interrupt processing step of 502 takes place.

Figure 5 illustrates a similar programming step, but only one processor mode is queried, i.e., the secure execution mechanism (SEM) enabled in step 511. If so, then the steps 512, 513 and 514 take place. In both of Christie's Figures 4 and 5, the determination relating to the domain in which the system is operating, i.e., the processor mode makes the determination rather than any configuration associated with the exceptions as set out in the presently amended independent claims 1 and 24.

Thus, it is clear that Christie does not provide "said one or more exception conditions [with] respective programmable configurations" as required in independent claims 1 and 24. Christie provides switching of the execution handling mechanism in dependence upon the mode of operation which is currently taking place. The mode of operation are characteristics of the current processor state rather than being characteristics associated with the respective exception conditions set out in independent claims 1 and 24 and claims dependent thereon.

The non-obvious advantages associated with the present invention set out in claims 1 and 24 include increased flexibility in the way in which exceptions are processed and the ability to force execution of an exception in a particular way, e.g., with a secure exception handler, irrespective of the current processor mode. For example, a particular exception type could be coupled to a watch dog timer, which would give rise to an exception that forced secured mode processing at set intervals, whereby security self-checking could be performed. This forcing of the system into secure mode exception handling for certain exception types is strongly desirable in some circumstances and is an example of what may be achieved by the "respective programmable configurations" associated with the exception conditions themselves.

As a result of the above, it seems clear that the Christie references not only fails to teach the claims features of independent claims 1 and 24, but may actually lead one of ordinary skill in

the art away from Applicant's claimed combination of elements and method steps (by teaching handling based only upon processor mode). As a result, there is simply no support for any further rejection of claims 1 and 24 and claims dependent thereon under 35 U.S.C. § 102 over the Christie reference.

Should the Examiner believe there to be some disclosure in Christie, he is respectfully requested to identify the column and line number of any disclosure in Christie which teaches or renders obvious the "one or more exception conditions" which "have respective programmable configurations associated therewith" for controlling triggering of the exception handler operating in the respective modes.

In section 14 on page 9 of the outstanding Official Action, the Examiner suggest that dependent claims 11, 19-20, 34 and 42-43 are unpatentable under 35 U.S.C. § 103 over the Christie patent. Inasmuch as these claims are all directly or indirectly depending from independent claims 1 and 24, the above arguments distinguishing claims 1 and 24 over the Christie reference are herein incorporated by reference.

Additionally, the Examiner admits that Christie fails to disclose "wherein said exception conditions include one of [sic] more of: a secure interrupt signal exception; a mode switching software interrupt signal; a reset exception; an interrupt signal exception; a software interrupt signal; an undefined instruction exception; a prefetch abort exception; a data abort exception and a fast interrupt signal exception." This admission is appreciated.

While the Examiner alleges "official notice" that the above disclosures (admittedly missing from Christie) is well known in the art, Applicant respectfully traverses this contention with respect to the Christie reference pursuant to MPEP §2144.03. The Christie reference, as noted above, teaches two main behaviors in Figures 4 and 5, which are depended upon the

domain in which the system is currently operating, i.e., the secure or non-secure domain. The Applicant's claimed invention operates based upon exception conditions which have "respective programmable configurations."

The above admission that Christie fails to teach the exceptions is a clear admission that Christie fails to teach or disclosure the subject matter of independent claims 1 and 24 (and claims dependent thereon). Thus, the Examiner is respectfully requested to demonstrate how or why he believes these exceptions, admitted to be missing from the Christie reference, are "well known in art." Pursuant to MPEP §2144.03, the Examiner is obligated to cite a reference in support of his Official Notice allegation because this contention has been traversed by the Applicant.

Moreover, even if the exceptions (admitted to be missing from the Christie reference) are demonstrated by the Examiner to be well known in the art, there is no "reason" or "motivation" for combining the exception disclosures (in the as yet unknown and uncited prior art) with the Christie reference, since Christie specifically teaches that it is desirable to make a determination relating to the domain in which the system is operating, i.e., secure or non-secure.

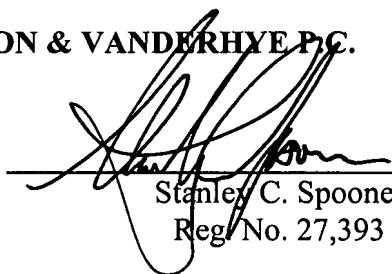
Thus, Christie would "teach away" from Applicant's claimed invention, thereby evidencing the non-obviousness of claims 1 and 24 (and claims dependent thereon). Therefore any further rejection of claims 11, 19-20, 34 and 42-43 as unpatentable over Christie under 35 U.S.C. § 103 is respectfully traversed.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that remaining claims 1, 2, 4-25 and 27-47 are in condition for allowance and notice to that effect is respectfully solicited.. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more the above claims, he is respectfully requested to contact the Applicant's undersigned representative.

WATT et al
Appl. No. 10/714,519
August 2, 2007

Respectfully submitted,

NIXON & VANDERHYE, P.C.

By: 

Stanley C. Spooner
Reg. No. 27,393

SCS:ewm
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100